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ORGANIZATION OF JOBS
FOR CONVICTED DISABLED PEOPLE
AND PEOPLE WITH LIMITED PHYSICAL ABILITIES

ОРГАНИЗАЦИЯ РАБОЧИХ МЕСТ
ДЛЯ ОСУЖДЕННЫХ ИНВАЛИДОВ
И ЛИЦ С ОГРАНИЧЕННОЙ ТРУДОСПОСОБНОСТЬЮ

Abstract. The problem of this research work is to improve the efficiency of convicts' social adaptation through the process of effective employment, training and re-training in correctional institutions, as well as a complex of actions for post-penitentiary support. The object of the study is the existing system of organization of convicts' work in correctional institutions. The subject of the study is the social and labour relations within the organization of jobs for a specific category of convicted disabled people and people with limited physical abilities. The aim of the study is to create an approximate mechanism for increasing the availability of correctional institutions' production facilities for the employment of convicted disabled people. This goal predetermined the solution of the following tasks: analysis of the current state of employment of convicted disabled people at correctional facilities; analysis of international, national and departmental legal acts affecting the work organization of people with limited physical abilities; study of the main regulatory and technical requirements for the work organization of convicted disabled people; development of approximate variants of workplaces' organization and production sites for employment of disabled people on the basis of the existing requirements.

The method of research involves the study of general theoretical questions of work organization, the domestic theoretical literature on the problem of convicts' work organization, normative-legal and normative-technical documents, and analysis of statistical data of the Federal penitentiary service of Russia.

The structure of the work is typical. The first part contains a brief theoretical and statistical analysis of the problem. In the second – were covered general questions of convicted disabled people's workplace organization on the basis of technical, ergonomic, sanitary and hygienic basic requirements. In the third – the requirements for the planning of workplaces and production facilities are analyzed in detail; the approximate options for convicted disabled people's organization of work are given.

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The theoretical significance of the study consists in the formation of a systematic view of employment and socio-labour relations in prisons, taking into account the specifics of convicts as a social group. This formation can contribute to the improvement of state policy in the field of convicts’ employment at the federal and regional levels.

The practical significance of the work is that the recommendations can be used in the preparation of specific projects of production sites for convicted disabled people’s work organization, in the development of monitoring programs of the existing state of convicts’ work organization, analytical and forecast materials on the employment of convicted disabled people in places of detention, for development of effective measures in the field of regulation of social and labour relations in places of imprisonment and improvement of production and economic activity by authorized bodies of the state power of Penal system, and also streamlining of normative legal and methodical base in the field of convicts’ work organization.

**Keywords:** organization of convicts’ labour employment, convicted disabled people, convicts with limited capacity for work, production facilities of correctional institutions, Penal system.

### Аннотация

Проблема, на решение которой направлено данное исследование, заключается в повышении эффективности социальной адаптации лиц, отбывающих наказание в местах лишения свободы и освобождающихся из них, в процессе эффективной занятости, профессиональной подготовки и переподготовки в исправительных учреждениях, а также комплекса мероприятий по постпенитенциарному сопровождению. Объектом исследования выступает существующая система организации труда осужденных в исправительных учреждениях. Предметом исследования являются социально-трудовые отношения в рамках организации рабочих мест для специфической категории осужденных инвалидов и лиц с ограниченной трудоспособностью. Целью исследования является создание примерного механизма повышения доступности производственных объектов исправительных учреждений для занятости осужденных инвалидов. Постановка указанной цели предопределила решение следующих задач:

- анализ существующего состояния занятости осужденных инвалидов на объектах исправительных учреждений;
- анализ международных, национальных и ведомственных правовых актов, затрагивающих проблему организации труда инвалидов;
- изучение основных нормативно-технических требований к организации труда осужденных инвалидов;
- разработка примерных вариантов организации рабочих мест и производственных участков для трудоустройства инвалидов на основе действующих требований.

Методика исследования предполагала изучение общетеоретических вопросов организации труда, отечественных теоретических источников по проблематике организации труда осужденных, нормативно-правовых и нормативно-технических документов, анализ статистических данных Федеральной службы исполнения наказаний.

Структура работы является типовой. В первой части проведен краткий теоретический и статистический анализ поставленной проблемы. Во второй – освещены общие вопросы организации рабочих мест для осужденных инвалидов на базе основных требований технического, эргономического и санитарно-гигени-
ческого характера. В третьей – подробно проанализированы требования к планировкам рабочих мест и производственных объектов, даны примерные варианты организации производственных помещений для организации труда осужденных инвалидов.

Теоретическая значимость исследования заключается в формировании системного взгляда на занятость и социально-трудовые отношения в местах лишения свободы, учитывающего специфику осужденных как социальной группы, что может способствовать совершенствованию государственной политики в сфере занятости осужденных на федеральном и региональном уровнях.

Практическая значимость работы состоит в том, что сформулированные рекомендации могут быть использованы при подготовке конкретных проектов производственных участков для организации труда осужденных инвалидов, при разработке программ мониторинга существующего состояния организации труда осужденных инвалидов, аналитических и прогнозных материалов по вопросам занятости осужденных инвалидов в местах лишения свободы, при выработке уполномоченными органами государственной власти эффективных мер в сфере регулирования социально-трудовых отношений в местах лишения свободы и совершенствования производственно-хозяйственной деятельности уголовно-исполнительной системы, а также упорядочения нормативно-правовой и методической базы в области организации труда осужденных к лишению свободы.

Ключевые слова: организация трудовой занятости осужденных, осужденные инвалиды, осужденные с ограниченной трудоспособностью, производственные объекты исправительных учреждений, уголовно-исполнительная система.

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1. Analysis of the current state of convicted disabled people's employment

The ratification by the Russian Federation of the Convention on the rights of people with limited physical abilities (hereinafter – Convention) in 2012 confirmed the high status of Russia as a social state and defined the key directions of the state policy in the field of social protection of people with limited physical abilities, the purpose of which is to ensure equal opportunities for such people with other citizens in the implementation of civil, economic, political and other rights and freedoms provided for by the Constitution of the Russian Federation, as well as in accordance with generally recognized principles and norms of international law and international treaties.

The purpose of the Convention is to promote, protect and ensure the full and equal usage by people with limited physical abilities of all human rights and fundamental freedoms as well as promoting respect for their inherent dignity. The key principles of the Convention, shared throughout the civilized world, were: respect for human dignity, personal autonomy, including freedom to make own choices, and independence; non-discrimination; full and effective participation and inclusion in society; respect for people with limited physical abilities and their acceptance as a component of human diversity and part of humanity; equality of opportunity; availability; the equality of men and women; respect for developing abilities of disabled children and their right to preserve individuality.

Federal law No. 419 “About amendments to certain legislative acts of the Russian Federation on social protection of people with limited physical abilities according to the ratification of the Convention on the rights of people with limited physical abilities” (adopted on 01.12.2014) established a transitional period, during which the Federal executive authorities, local governments approve and realize measure activities to increase the value of service opportunity (social, engineering, transport infrastructure etc.) for people with limited physical abilities. The order and terms of development of these activities are defined by the Government of the Russian Federation.

Increasing the value of basic indicators of Federal penitentiary service (hereinafter – the FPS of Russia) objects accessibility for people with limited physical abilities is established by the Regulation of the FPS of Russia No. 128 “About the plan of measures (road map) for increasing values of indicators of accessibility for people with limited physical abilities in the institutions of the FPS” (adopted on 30.09.2015). Four of sixteen indicators covering the full range of tasks to improve the accessibility of institutions of the FPS of Russia for convicted disabled people are assigned to the management of the organization of industrial activity and labour adaptation of convicts (table 1). They reflect the issue of participation of convicted disabled people in the educational process, as well as in social and labour relations.

Special attention is paid to the creation of special jobs for the disabled people, equipped with the existing persistent disorders of the body, leading to restriction of life. The basic requirements for equipping these workplaces were approved by the order of the Ministry of labour and social protection of the Russian Federation No. 685 “About approval of basic requirements for equipping special jobs for the employment of disabled people, taking into account the impaired functions and limitations of their life” (adopted on 13.11.2013). Besides, the question of passing by the staff of Penal
A brief statistical analysis of disabled convicts’ employment on correctional institutions’ objects (table 2) allows us to formulate the following conclusions.

The number of disabled convicts during 2013–2016 decreases (~1.7 thousand people). At the same time, there are no significant changes in the structure of disabled convicted people: 55 % of disabled convicts are of group III, while 45 % of such convicts are of I and II groups of disability. The proportion of disabled convicts, detained in correctional institutions in relation to the total number of convicted people also shows slight changes at the level of 3.4–3.9 %.

The number of employed convicts with disabilities during 2013–2016 changed quite un-
stable: the minimum value for 2015 is 1.8 thousand people, but in 2016 the maximum value was fixed on the level of 2.3 thousand people, which can be associated with the intensification of work in this direction in connection with the approved Plan of measures (Regulation of the FPS of Russia No. 128, adopted on 30.09.2015). Positive dynamics is also observed in the proportion of employed people with disabilities from the total number of convicted people with disabilities detentioned in correctional institutions. The growth in the category of disabled people (group III) is particularly noticeable (figure 1).

**Table 2**

Main indicators of disabled convicts’ employment in the correctional institutions of the FPS of Russia in 2013–2016

<table>
<thead>
<tr>
<th>No. p/n</th>
<th>Indicator</th>
<th>Indicator value</th>
<th>Deviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The number of disabled convicts, detentioned in correctional institutions, thousand people.</td>
<td>21.2 19.9 18.9 19.5</td>
<td>–1.3 –1 0.6</td>
</tr>
<tr>
<td></td>
<td>among them:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>convicts of the I group of disability</td>
<td>0.5 0.5 0.5 0.5</td>
<td>0 0 0</td>
</tr>
<tr>
<td></td>
<td>convicts of the II group of disability</td>
<td>9.2 8.5 8.3 8.3</td>
<td>–0.7 –0.2 0</td>
</tr>
<tr>
<td></td>
<td>convicts of the III group of disability</td>
<td>11.5 10.9 10.1 10.7</td>
<td>–0.6 –0.8 0.6</td>
</tr>
<tr>
<td>2</td>
<td>The number of disabled convicts, detentioned in correctional institutions, % of the total number of convicted people</td>
<td>3.9 3.5 3.4 3.7</td>
<td>–0.4 –0.1 0.3</td>
</tr>
<tr>
<td>3</td>
<td>The number of the employed condemned disabled people, detentioned in correctional institutions, thousand people.</td>
<td>2.2 2.1 1.8 2.3</td>
<td>–0.1 –0.3 0.5</td>
</tr>
<tr>
<td></td>
<td>among them:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>convicts of the I and II group of disability</td>
<td>0.8 0.7 0.4 0.5</td>
<td>–0.1 –0.3 0.1</td>
</tr>
<tr>
<td></td>
<td>convicts of the III group of disability</td>
<td>1.6 1.5 1.4 1.8</td>
<td>–0.1 –0.1 0.4</td>
</tr>
<tr>
<td>4</td>
<td>The number of employed people with disabilities to the total number of disabled convicts, detentioned in correctional institutions, %</td>
<td>10.4 10.6 9.5 11.8</td>
<td>0.2 –1.1 2.3</td>
</tr>
<tr>
<td></td>
<td>among them:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>convicts of the I and II group of disability</td>
<td>8.2 7.8 8 5.7</td>
<td>–0.4 0.2 –2.3</td>
</tr>
<tr>
<td></td>
<td>convicts of the III group of disability</td>
<td>13.9 13.8 13.9 16.8</td>
<td>–0.1 0.1 2.9</td>
</tr>
</tbody>
</table>

Source: statistical reports of the FPS of Russia.
2. Procedure and requirements for the organization of disabled convicts’ workplaces

The organization of labour in its social and economic content is a certain order of construction and implementation of the labour process, as well as specific forms and methods of interaction of workers with each other and with the means of production, in which synchronization of technological and labour operations is achieved. It is a complex, multi-faceted process that includes the following activities: division and cooperation of labour; labour regulation; organization and maintenance of workplaces; organization of selection of workers and their development; improve working conditions; efficient use of working time; rationalization of labour processes, introduction of best techniques and practices; strengthening the discipline of work; organization of the system of employee motivation and remuneration (employment, labour market, social and labour relations).

Within the framework of this research, more attention is paid to the element of workplace organization, but it is necessary to realize that only the whole range of activities in the above areas can lead to the construction of an effective system of labour organization at a particular correctional facility. In the theory of the production organization the workplace is understood as the link of manufacturing process serviced by one or several workers intended for performance of a certain product or service operation (or their group), outfitted with the corresponding equipment and organizational and technical means. The organization of the workplace is the system of actions for its planning, equipment with means and objects of activity, their placement in a certain order, service of the workspace and creation of ne-
cessary manufacturing conditions. This stage of the research is connected with consideration of this issue in the specific plane of disabled convicts’ work organization.

The legal framework conditions for realization by people with disabilities of their rights on education and participation in work are established in articles 19–24 of the Federal law No. 181 “About social protection of people with disabilities in the Russian Federation” (adopted on 24.11.1995). At the enterprises of many industries, in various institutions and organizations, there are professions and specialties corresponding to the psycho-physiological characteristics of people with disabilities of different categories. Individual programs for the rehabilitation of disabled people are developed on the basis of the list of such professions in the institutions of the state service of medical and social expertise. They provide recommendations for vocational adaptation and employment. Employment of people with disabilities, based on these recommendations, can be carried out in two ways.

The first direction assumes creation of specialized enterprises, production buildings, shops, workshops for those categories of disabled people which physiological features impose a difficult complex of specific sanitary and hygienic, architectural-building and ergonomic requirements to the production environment. This direction is appropriate primarily for people with disabilities: blind, deaf, and deaf-mutes, disabled convicts with reduced intelligence and people with disabilities who use wheelchairs. Though, they may be offered jobs in private workshops and premises at enterprises of the general type, as well as in institutions.

The second direction is selection at the enterprises of the General type and in institutions of premises, shops, production areas, support services, in which there are no production (technological and sanitary-hygienic) factors contraindicated for disabled people, or they are easily eliminated by means of simple measures. At the same time there are professions and specialties corresponding to psycho-physiological features of disabled people of one or another category. In these cases, relatively simple architectural, ergonomic and organizational measures can be sufficient to ensure optimal working conditions for the disabled person (Code of rules for design and construction 35-104-2001).

It is obvious that the second direction of employment for disabled convicts and people with limited physical abilities is the most acceptable for correctional institutions in the current socio-economic situation.

The basic requirements for the equipment of special workplaces for disabled people’s employment, taking into account impaired functions and limitations of their activity, approved by the Order of the Ministry of labour of Russia No. 685 “About approval of the basic requirements to the equipment of special workplaces for disabled people’s employment taking into account impaired functions and limitations of their activity” (adopted on 19.11.2013). Thus, the equipment of special jobs for the employment of people with disabilities includes the selection, installation and operation of basic technological and organizational equipment, tools, support means, the use of which allows to create conditions for the performance of the disabled person’s work functions in their workplaces. This process includes the following steps:

1) analysis of needs of a disabled person (group of disabled people) in equipping a special workplace in accordance with work functions;
2) formation of the list of actions for equipment of special workplaces for disabled people’s employment;
3) implementation of measures aimed at equipping special jobs for disabled people’s employment (purchase, installation and commissioning of technological equipment and tools).

The Order establishes that “the provision of special jobs for disabled people’s employment shall not interfere with the performance of labour functions of other employees”. With
regard to the specifics of the organization of convicts’ work at correctional institutions, we give some excerpts from the standard requirements for the equipment of workplaces in various categories.

The requirements for equipping special workplaces for visually impaired people, taking into account work functions, provide with general and local lighting, provide the usage of video magnifiers and loupes that help to find their workplaces and perform their work functions.

The requirements for equipping special workplaces for visually impaired and blind people, taking into account work functions, include vehicle specific workplace devices with the ability to use large boldly-contrasting font and Braille, blind aid and acoustic navigation. These devices help to find their workplaces and perform their work functions. Insonation of visual information, using additional peripherals and electronic means of functional purpose, provide the ability to perform work without visual control.

The requirements for equipping special workplaces for hearing impaired people, taking into account work functions, provide the usage of sound amplifying equipment and loud-speaking telephones.

The requirements for equipping special workplaces for hearing impaired and deaf people, taking into account work functions, provide visual indicators that convert sound signals into light, voice signals into scrolling text. These devices help to find their workplaces and perform their work functions.

The requirements for equipping special workplaces for disabled people with concurrent impaired vision and hearing, taking into account work functions, provide the usage of tactile devices, electronic means of functional purpose, giving the ability to perform work without visual and auditory control. These devices help to find their workplaces and perform their work functions.

The requirements for equipping special workplaces for disabled people with impaired functions of the musculoskeletal system, taking into account work functions, provide the usage of special workplace equipment, ensuring the implementation of ergonomic principles which are most convenient for a disabled person (the location of the elements of the workplace). These are mechanisms and devices changing the height and tilt of the work surface, the position of working chairs, the angle of inclination of working chair backrest, special seat equipment that compensates standing effort, special devices for control and maintenance of this equipment, as well as devices for capturing and holding objects and parts, compensating violations of functions or structures of the body, as well as disabled people’s life restrictions.

The requirements for equipping special workplaces for disabled people moving on wheelchairs, taking into account the performed work function, provide the ability to access the workplace and turn the wheelchair. The space under the equipment elements should create conditions for entrance and work on a wheelchair.

In addition to the requirements of technical equipment, special attention should be paid to the provision of sanitary and hygienic rules for working conditions in the organization of jobs for disabled convicts. In general, these requirements are approved by the resolution of the chief sanitary doctor No. 30 “About approval of sanitary rules 2.2.9.2510-09 “Hygienic requirements for working conditions of disabled people” (adopted on 18.05.2009).

Working conditions of disabled people should be corresponding to the individual rehabilitation program developed by the office of medico-social assessment. The recommended working conditions for disabled people are the following: optimal and acceptable sanitary and hygienic conditions of the production environment for physical (noise, vibration, infrasound, electromagnetic radiation, dust, microclimate), chemical (harmful substances, allergens, aerosols, etc.) and biological (microorganisms, including pathogenic, protein preparations) factors; work with insignificant or moderate physi-
3. Regulatory requirements for production facilities in workplaces of disabled convicts

3.1. Normative-legal framework

One of the main normative and technical documents regulating measures to adapt the existing working environment to the needs of disabled people is the set of rules for the design and construction No. 35-104-2001 “Buildings and premises with workplaces for disabled people”, which is included in the 35th set of normative documents in the field of design and construction. The main document of the Federal level for this complex is the building code No. 35-01-2001 “Accessibility of buildings for people with limited mobility”.

In each case, depending on the characteristics of convicts, tasks for the design of production facilities can be set by requirements for jobs on certain nosologies. A set of measures to ensure the availability of jobs for people with disabilities at a particular production facility is developed jointly by rehabilitation doctors, technologists and architects. They make a project of a whole production facility, which are supposed to accommodate jobs for people with disabilities. To develop a set of measures to ensure the availability of jobs, it is recommended to carry out pre-project work, which includes:

– preliminary definition of work points for disabled people in the technological scheme of the production process;
– comparison of the existing conditions in the working areas which are intended for disabled people, taking into account: the size of the working area, the quality of the air, the presence of adverse factors, as well as building barriers within the working area;
– identification of building barriers on ways of disabled person’s movement from the workplace to the premises of social and household purpose, daily or periodically visited by them (bathrooms, dressing rooms, recreation and eating facilities, medical center, etc.);
– preliminary preparation of a set measures to ensure the availability of all workplaces intended for disabled people’s;
– economic assessment of the complex of these measures, identification of mandatory measures, as well as workplaces intended for disabled people, measures to ensure accessibility that are economically impractical;
– preparation of the optimal set of measures to ensure the availability of workplaces.

Starting points for the design of the production facility, taking into account the interests of workers with disabilities, are:

– initial availability of jobs suitable for disabled people;
– their location in space-planning structure of the correctional institution’s production unit;
– accessibility of workplaces for disabled people;
– safety and comfort of workplaces, including acceptable sanitary and hygienic conditions in workplaces for disabled people.

Workplaces for disabled people at each specific facility of the correctional institution may be single, dispersed or concentrated in specialized production areas or in workshops. The principle of work placement depends on the peculiarities of technological processes and organization of production, as well as on the number of disabled people.

Workplaces, depending on the specialty for which they are provided, and disability group can be ordinary, that is, with equipment designed for a healthy worker, or specialized for a particular disability group, which is set in the design assignment.

The professions inherent in this production process and suitable for the disabled people are determined by the territorial bodies of social protection in accordance with the recommendations of the medical and social expertise. These recommendations are set in the approved individual program of disabled person’s rehabilitation.
Accessibility of workplaces for disabled people should be provided by:

– complex principles’ definition of their placement, including in structure of correctional institution; in volume and planning structure of the building (production, administrative, in some cases inhabited);
– elimination or transformation of living environmental elements, which may be barriers between disabled people and their workplaces;
– informational way equipment for disabled people.

A set of measures to ensure the accessibility of workplaces for disabled people should be rational. Expensive equipment (if there is only one workplace for disabled people who use wheelchairs a device of elevator in low-rise building, or a device of an underpass with a ramp on the small production facility) should be excluded. In such cases, the accessibility of workplaces and the safety of movement to them can be ensured by other architectural or organizational measures. The comfort of the workplace is provided by a well-chosen set of equipment in accordance with the physiological characteristics of the disabled person, various accessories and furniture, as well as the creation of the necessary sanitary conditions in the work area. The workplace safety is provided by special protective devices included in the set of its equipment, as well as the creation of conditions for the timely evacuation of a disabled person in extreme cases, for example, in case of fire danger. The territory planning of the correctional institution’s production zone and its equipment shall ensure the minimum length of pedestrian ways, the safety of movement in the territory, as well as the absence of elements that create barriers to the movement of disabled people.

Space-planning solutions of industrial buildings, which provide workplaces for disabled convicts, are recommended to design taking into account the following requirements:

– equipping the building with an information system that provides orientation and the shortest ways for the movement of disabled people;
– providing the shortest ways of movement due to the local grouping of premises for various purposes, daily visited by disabled people;
– organization of ways of movement in the building, equipped with elements that provide sufficient information and safety of movement;
– provision of evacuation of disabled people in accordance with fire regulations and their physical abilities;
– providing with the sanitary and hygienic and household equipment specially adapted in relation to physiological features of disabled people.

3.2. Distribution of workplaces

Industrial buildings and specialized workshops on production sites for the blind and visually impaired people should be placed near the entrance to the building, not above the third floor. The layout of this part of the building should be very simple, symmetrical, and easy to remember. The block of social premises should be on the same level with specialized shops.

In buildings, which rooms are located above the first floor, are intended for work organization of disabled people, who are affected by musculoskeletal and cardiovascular systems. It is advisable to provide passenger elevators regardless of the building floor number. If in some cases this solution is not economically impractical, workplaces and rooms of daily service of disabled people, who are unable to move up stairs, should be located at the ground floor level.

Workplaces and rooms of daily service of disabled people (who has cardiovascular diseases, hypertension, motor disorders, disabled people with reduced intelligence and others) in the buildings which are not equipped with elevators, are desirable to be placed not above the second floor (with the height of the floor 4,2–4,5 meters).

Specialized workshops or production sites for disabled people with musculoskeletal disorders should be located at ground level. With the aim of reducing the ways of movement areas, daily visited by disabled people (domestic
facilities, meal rooms, block with the specified specialized shops) should be excluded from these parts of the premises not visited by the disabled (warehouse, office, commercial and others).

An example of redevelopment of the production premises is shown in figures 4, 5 (section 4). The initial layout of the production facility, which involves the employment of disabled convicts with musculoskeletal disorders, shown in figure 6 (section 4), has been adjusted to reduce the movement of the disabled within the production facility and to increase the availability of basic production and social premises (section 4, figure 7).

Specialized shops or production sites for disabled people with reduced intelligence should be placed not higher than the second floor, in the block with rooms of social service. The layout of this block should be clear with minimal length of travel ways, without duplication of premises (wardrobes, bathrooms, storage rooms, etc.).

In case of planning buildings, it should be borne in mind that the area of premises for disabled people's workplaces should be enlarged according to disability group (people with disabilities due to tuberculosis, lung diseases with respiratory failure, cardiovascular diseases, motor disorders of the lower extremities, amputation of the lower extremities, for people with high myopia, blind, moving with wheelchairs, or with emotional instability). The expansion of the area is due to increase in the width of the aisles between the equipment and the working areas for these disabled people.

Premises with workplaces for the disabled with reduced intelligence and emotional instability, as well as disabled hypertensive people should have small size.

Premises with workplaces for disabled people with tuberculosis should be placed on the sunny side, and for disabled people with diseases of the cardiovascular system on the shadow side. If it is impossible to comply with these requirements, it is necessary to use sun protection devices. These rooms should be provided with increased frequency of air exchange, thus air recirculation is not allowed.

Finishing materials of a floor and walls in rooms for work of disabled people with tuberculosis diseases should be chosen taking into account ensuring wet cleaning and disinfection.

3.3. Orientation and movement on the territory of the production facility

Ways of movement of deaf and deaf-mute disabled people on the production building to the production site intended for their work, to rooms of social service and others shall be equipped with visual information. At the intersections of the ways of movement of the blind and visually impaired people and outdoor transport, protective fences in the form of removable barriers, railings, chains should be arranged.

In order to ensure orientation, reduce unnecessary movement in buildings and ensure safe movement, a system of visual, audible and tactile information should be developed in the interior design. This system should be aimed primarily at the safety of movement and orientation in the space of visually impaired people. Such a well-designed system will allow the disabled easily to navigate (Building Code for design and construction No. 35-104-2001).

Tactile orientation points: the guide rails in the corridors, the relief symbols on the handrails, tables with raised lettering or Braille at entrances to premises, raised floor plans in stairwells, lobbies and elevators, the modified type of floor coverings (texture, color) in front of obstacles and changes of direction (entrances, lifts, staircases, corners of hallways, etc.).

Sound orientation points: sound sensors at the entrances, at the intersections of traffic routes with intra-transport passages; a radio transmission in buildings, workplaces for the disabled, elevator cabs, and in rooms of social service.

Visual orientation points: various specially illuminated signs in the form of symbols and icons using a bright color, contrasting with the background surface; contrasting color designation at the entrances. Text information should be as brief as possible. Direction indicators should be
the same for the entire building and buildings of the same complex.

3.4. Finishing of the production facility

Finishing materials of premises for workplaces of disabled people should be chosen, taking into account the specific requirements for noise absorption and color scheme, depending on the disability group, established by the social protection bodies. In case of workplace organization for disabled people in premises where the noise or vibration level exceeds the permissible levels established in sanitary norms 2.2.4/2.1.8.562 and 2.2.4/2.1.8.566, control measures should be taken to protect workplaces of the disabled from noise and vibration.

Protective measures against noise and vibration are especially important for disabled people with hypertension, diseases of the organs of hearing, of nervous and mental diseases and disabilities with visual impairments (for whom it is difficult to navigate in space because of the noise).

It should be taken into account that in order to achieve the maximum effect, the area of sound-absorbing cladding of the ceiling and walls should be at least 60% of the total area of the surfaces limiting the room where the workplaces of disabled people are located.

To reduce the level of noise and vibration it is necessary to arrange sound-absorbing facing of ceilings and walls in the area of noisy equipment. It is possible to install separate sound absorbers, soundproof enclosures, acoustic screens or partitions that do not reach the ceiling. In some cases, it is necessary to use sound-insulating coatings on the surface of workplaces of the disabled.

The colour decoration of interiors in industrial premises shall be performed in accordance with the requirements of guidance on the design color finishing of interiors of industrial buildings in industrial enterprises, taking into account psycho-physiological characteristics of perception of the environment by certain categories of the disabled.

To improve the illumination of the premises, the colors of the finishing, used in the upper zone of the interiors, should have the highest reflection coefficient, and should be light with a minimum amount of color or white.

Choosing a color for finishing the middle zone of interiors (walls, partitions, columns, doors, etc.), it is necessary to take into account the peculiarities of perception of the surrounding space by disabled people due to neuropsychiatric diseases, eye diseases, as well as taking into account the need to provide orientation in the space of disabled people with residual vision.

The color of the lower zone should provide safety conditions of movement in the workplaces and other premises for people with visual impairments and diseases of the organs of hearing. The color scheme of the lower zone should be developed in complex with the system of visual information, including the warning color of dangerous areas of the premises and equipment elements, the identification color of communications, guidance signs and other types of color alarm.

The warning color should be applied to the following elements of the premises:

– elements, fixing dangerous sections and areas of the premises, including: the boundary of the inner passages in work areas and floor areas of transport (conveyors), zones of raw storage materials, semi-finished or finished products, as well as barriers, railings and other types of fences;

– elements of building constructions in the premise and equipment, such as gate flaps, columns, dimensions of openings and equipment, door frames, and projections in the floor plane.

The first and last stage of each flight of stairs should be painted in contrasting colors to warn the visually impaired about the beginning and end of the flight of stairs. On the floor or walls of various communication rooms: corridors, passages, lobbies, halls it is possible to use orienting and guiding colors. For persons with disabilities due to diseases of the nervous system and mental illness colors of premises should be of calm tones.
3.5. Designing of workplaces

The design and equipping of special jobs for the disabled should be realized taking into account the profession, the type of the performed work, the severity of disability, the degree of functional disorders and limitation of the ability to work, the level of specialization of the workplace, mechanization and automation of the production process. The design, reconstruction and operation of special jobs for the disabled should be guided with:

– the uniform sanitary rules for the enterprises and work areas intended for usage by the disabled and old-age pensioners;
– occupational safety standards;
– sanitary rules, norms, hygienic standards;
– hygienic criteria for assessment and classification of work conditions in terms of dangerous and harmful factors of work environment, severity and intensity of the labour process;
– regulations of public associations of disabled people (Russian society of the disabled, Russian society of the deaf, Russian society of the blind), the Ministry of labour and social development of the Russian Federation regulating work of disabled people.

The special workplace of disabled convicts shall ensure safety of work, work with insignificant or moderate physical, dynamic and static, intellectual, sensory and emotional workload (1 and 2 classes according to Hygienic criteria), exclude possibility of deterioration of health or traumatism of the disabled.

Contraindicated work conditions for the employment of disabled people are work conditions characterized by the presence of harmful production factors that exceed hygienic standards and have an adverse effect on the body of the worker or his offspring (3d class according to Hygienic criteria), and work conditions, the impact of which during the work shift (or part of it) poses a threat to life, a high risk of severe forms of acute occupational injuries (4th class according to «Hygienic criteria»).

The working conditions contraindicated for employment of disabled people are characterized by the raised (lowered) levels of:

– physical factors (noise, vibration, air temperature, humidity and air mobility, electromagnetic radiation, static electricity, illumination, etc.);
– chemical factors (dust, gas contamination of the working area air);
– biological factors (pathogenic microorganisms and products of their activity);
– physical, dynamic and static loads during lifting, moving and holding weights, working in uncomfortable forced poses, long walking;
– neuropsychiatric loads (sensory, emotional, intellectual load, monotony, work in the night shift with an extended work day).

Working conditions of disabled people shall correspond to the individual rehabilitation program of the disabled person, developed by the State Expertise Committee. The recommended working conditions for the employment of the disabled are:

– optimal and acceptable sanitary and hygienic conditions of the production environment (1st and 2d classes) according to physical (noise, vibration, infrasound, electromagnetic radiation, dust, microclimate), chemical (harmful substances, allergens, aerosols, etc.) and biological (microorganisms, including pathogenic, protein preparations) factors;
– work with minimal (1 class) or medium (2 class) physical, dynamic and static activity, in some cases with high level of physical load;
– work mainly in a free position, sitting, with the possibility of changing the position of the body, in some cases standing or walking;
– the workplace corresponding to ergonomic requirements;
– work related to minor movements.

Placement of equipment and furniture in workplaces of disabled people should ensure safety and comfort of work (approximate layouts of production sites are shown in figures 2–5).

Placement of machines, equipment and furniture at the workplace intended for disabled person's work, using for movement a wheelchair, shall provide opportunity of an entrance and a turn of the wheelchair. The workplace of blind and visually impaired person is intended
to have the ability to work without interference from the movement of other workers in the room. For convenient finding of the workplace by blind workers machines, equipment or furniture shall be supplied with tactile orientation points. Organizational and technical equipment of workplaces for disabled convicts (desktops, workbenches, racks, cases) shall correspond to their anthropometric characteristics (table 3).

Individual items of equipment and furniture for the workplace of the disabled people with lesions of the musculoskeletal system needs to be transformed. As a rule, the working table should have a variable height and tilt of the working surface, as well as an adjustable footrest. Desk chair for the disabled of this category shall be equipped with a device for changing the seat height and tilt, adjustable footrest, in some cases, a special seat that compensates the effort during rising, a device for working tools, a device for moving along the work plane, as well as by means of electromechanical autonomous devices.

The special workplace of the disabled person shall have the main and auxiliary equipment, technical and organizational devices providing implementation of ergonomic principles and considering individual opportunities and restrictions of specific people. It is advisable to use specially designed workplaces for disabled people, including a desktop, a chair, technological equipment and stands for raw materials, tools and finished products. Designing the workplace for a disabled person with injuries of the musculoskeletal system, it is necessary to consider operational field parameters available to the upper extremities (under condition of fixed position of a body).

The organization of the workplace and the design of all elements of furniture of the production equipment shall correspond to anthropometric, physiological and psychological features and limited opportunities of disabled people taking into account:

– anatomical and morphological characteristics of the motor system;
– ability to recognize the bodies controlling equipment, objects of labour, tools;
– accuracy, speed and amplitude of movements in the implementation of control actions;
– possibilities of capture and movement of tools, objects of work (by fingers, a brush, all hand, a foot, including the use of artificial limbs and working nozzles on them);
– quantities of effort developed in the implementation of management actions.

The design and organization of special jobs for persons with disabilities should be provided with:

<table>
<thead>
<tr>
<th>Table 3</th>
<th>The main organizational parameters and technical equipment of workplaces</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The parameters and the work position, mm</strong></td>
<td><strong>The height of a man</strong></td>
</tr>
<tr>
<td><strong>low</strong></td>
<td><strong>medium</strong></td>
</tr>
<tr>
<td>Height of the desktop during normal sitting</td>
<td>700</td>
</tr>
<tr>
<td>Table height for very precise work while sitting</td>
<td>900</td>
</tr>
<tr>
<td>Height of working surfaces during work on machines while sitting</td>
<td>800</td>
</tr>
<tr>
<td>Height of the working surface during work on machines while standing</td>
<td>1000</td>
</tr>
<tr>
<td>Height of the working surface during work, where it is possible to change the working position (sitting or standing)</td>
<td>950</td>
</tr>
</tbody>
</table>

Note: the height for the feet from the floor to the bottom of the table is 600–625 mm, the width of the leg area is 400 mm.

– usage of special devices for the management and maintenance of equipment, compensating anatomical, morphological and physiological deficiencies and limitations of the disabled;
– usage of specially designed hand tools, the shape, size and resistance of the drive elements which provide a reliable grip and efficient work;
– location of bodies controlling equipment, technological or organizational equipment, machined parts in workplaces within the reach of the motor field (in horizontal and vertical planes), taking into account the anthropometric and physical dimensions and physical limitations of the disabled;
– height regulation of working tables and the elements of working chairs, easily accessible and controlled mechanisms with a secure fit;
– allocation of additional areas that provide the possibility of entrance, turn in the workplace and work in a wheelchair;
– equipment and furniture in workplaces with indicators (visual, acoustic, tactile), taking into account the possibilities and limitations of certain groups of disabled people (blind, visually impaired, deaf) in the perception of information for unhindered presence at the workplace and performance of work.

All items of stationary equipment intended for use by the disabled must be firmly and securely fastened. Fasteners of equipment, regulators, and electrical switches should not protrude beyond the plane of the fixed element.

Placing the work zones for the disabled person in the room, where in some areas there are processes that are contraindicated for their health. It is necessary to adjust the parameters of the working environment of the disabled.

Workplace lighting
Requirements of safe and favorable working conditions, as well as modern requirements for energy saving should be taken into account in the organization of artificial lighting in workplaces for the disabled. Choosing rational light sources workers should take into account the light output of the source, the color of the light; light distribution, providing the formation of contrasts on the object of visual observation and weakening the reflected brilliance. It should be noted that the best color rendering is provided by incandescent lamps, but they have the lowest light output. Fluorescent lamps have a light output four times higher than incandescent lamps, their service life is five times longer.

Installation of lamps should provide a more rational light distribution. It should be taken into account that the best direction of light, increasing contrasts and weakening brilliance, is achieved when the light falls on the workplace, mainly from the side, obliquely and behind. It is recommended to increase the illumination in the area of desktops by lowering the lamps, but not below 240 cm, as the lamps suspended below will interfere with their proximity, especially when part of the work at the table is done standing. Artificial lighting of the working area and workplaces of persons with residual vision should be developed most carefully. It can be general and local lighting. Local lighting should be provided by incandescent lamps. Cabinets or racks included in the equipment of the workplace of the disabled convicts with residual vision should be mounted with lamps which automatically switch on.

Local lighting should be stable, controlled in brightness and spectrum depending on the eye disease. The level of illumination on the working plane is set depending on the work type and features of disability.

4. The approximate layout of production areas for disabled convicts and people with limited physical abilities

This section presents the approximate layout of production sites intended for employment of disabled convicts and people with limited physical abilities (figures 3–5). In addition, an example of redevelopment of the floor in the production building for employment purpose of disabled convicts with the defeat of the musculoskeletal system (figures 6–7).
Figure 2. Cardboard layout of the site, adapted for the labour of disabled convicts

Conventional signs: 1 – work table; 2 – chair with adjustable seat; 3 – a wire sewing machine; 4 – glue pot; 5 – master; 6 – wash basin.

It is developed on the basis of the Code of rules on design and construction 35-104-2001 “Buildings and rooms with workplaces for disabled people” (approved and recommended for use by the resolution of Russian Federation construction committee adopted on 16.07.2001 No. 69)
Figure 3. The layout of the workshop for the repair of household appliances adapted to the work of disabled convicts

Conventional signs: 1 – work table; 2 – chair with adjustable seat; 3 – testing stand; 4 – table with hood; 5 – workplace master inspector; 6 – rack for materials; 7 – inspector’s rack; 8 – wash basin.

It is developed on the basis of the Code of rules on design and construction 35-104-2001 “Buildings and rooms with workplaces for disabled people” (approved and recommended for use by the resolution of Russian Federation construction committee adopted on 16.07.2001 No. 69)
Figure 4. The layout of the carpentry workshop, adapted for the work of disabled convicts
Conventional signs: 1 – joinery workbench; 2 – chair with adjustable seat;
3 – workbench with woodworking machine and a circular saw; 4 – table with hood;
5 – master’s workplace; 6 – rack for production materials; 7 – wash basin.
It is developed on the basis of the Code of rules on design and construction 35-104-2001
“Buildings and rooms with workplaces for disabled people”
(approved and recommended for use by the resolution
of Russian Federation construction committee adopted on 16.07.2001 No. 69)
Figure 5. Layout of a sewing workshop adapted to the work of convicts

Conventional signs: 1 – work desk with sewing machine; 2 – chair with adjustable seat; 3 – ironing table; 4 – ironing press; 5 – master’s workplace; 6 – rack for production materials; 7 – assembling table; 8 – cutting table; 9 – wash basin.

It is developed on the basis of the Code of rules on design and construction 35-104-2001 “Buildings and rooms with workplaces for disabled people” (approved and recommended for use by the resolution of Russian Federation construction committee adopted on 16.07.2001 No. 69)
Figure 6. The original layout of production premises for disabled convicts with lesions of the musculoskeletal system


Premises of daily service for the disabled are shaded; dotted line indicates the route of movement of the disabled.

It is developed on the basis of the Code of rules on design and construction 35-104-2001 “Buildings and rooms with workplaces for disabled people” (approved and recommended for use by the resolution of Russian Federation construction committee adopted on 16.07.2001 No. 69)
Figure 7. Redevelopment of production premises, involving employment of disabled convicts with lesions of the musculoskeletal system


Premises of daily service for the disabled are shaded; dotted line indicates the route of movement of the disabled.

It is developed on the basis of the Code of rules on design and construction 35-104-2001 “Buildings and rooms with workplaces for disabled people” (approved and recommended for use by the resolution of Russian Federation construction committee adopted on 16.07.2001 No. 69)
Conclusions
The problem of job organization for disabled convicts has certainly social importance. The ratification by the Russian Federation of the Convention on the rights of disabled people indicated the state’s readiness to implement the national policy in the field of social protection of the disabled in accordance with high international standards. A significant number of disabled convicts in correctional institutions (19.5 thousand people or 3.7 % of the total number of convicts) indicates a significant amount of work required to implement the planned goals to improve the accessibility of facilities of the FPS for disabled convicts. This problem reflects only one of the many problematic fields of functioning of the FPS as one of the key elements in ensuring of law order and national security. However, its implementation directly affects other urgent tasks of the FPS development.

Prospects for further development of this problem are associated with a more detailed study of job organization for disabled convicts (in particular the problems of labour regulation, the creation of necessary working conditions, the development of effective systems of motivation of this category of convicts). In addition, it is necessary to develop an objective mechanism of disabled convicts’ labour adaptation (including programs of professional, psychophysiological and social adaptation), a mechanism for assessing the effectiveness of employment of disabled convicts, as well as to increase the role of employees of industrial and technical services of correctional institutions in achieving the social goals of convicts ‘ work.

These and other problems require extensive research from the standpoint of the theory and practice of economics and sociology of labour and, of course, should attract interested professionals.

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